

WHAT IS CLAIMED IS:

1. A method for synchronizing two data streams wherein the first data stream has a delay, the method comprising:

5 setting a first data stream generator to output a first periodic pulse stream with its period equal to first period, T1, producing an output after the delay;

 setting a second data stream generator to output a second periodic pulse stream with its period equal to second period, T2, wherein second
10 period, T2, is not equal in duration to first period, T1;

 detecting a time when a pulse of the delayed first pulse stream and a pulse of the second pulse stream occurs simultaneously;

 changing the period of the second pulse stream to be equal to first period, T1; and

15 starting the generation of the two data streams.

2. The method of claim 1, wherein first period, T1, is greater in duration than second period, T2.

20 3. The method of claim 2, wherein both first period, T1, and second period, T2, are greater in duration than the delay.

4. The method of claim 1, wherein first period, T1, is smaller in duration than second period, T2.
5. The method of claim 1, wherein the synchronization pulses are of a duration that is greater than a minimum duration detectable a pulse detector.
6. The method of claim 1, wherein the changing step comprises changing the period of the second pulse stream prior to the end of the period with the detected pulse.
7. The method of claim 1, wherein the delay is smaller in duration than the duration of first period, T1.
8. The method of claim 1, wherein the starting step comprising:
setting the first data stream generator to generate the first data stream at the end of the current period of the first periodic pulse stream; and
setting the second data stream generator to generate the second data stream at the end of the current period of the second periodic pulse stream.
9. The method of claim 8, wherein the two data streams are periodic and the period of the first data stream is equal to first period, T1.

10. The method of claim 8, wherein the two data streams are periodic and the period of the first data stream is equal to the period of the second data stream.

5 11. The method of claim 1, wherein the delay is due to the pulse stream propagating through hardware.

12. The method of claim 11, wherein the hardware comprises test hardware and a device under test.

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13. The method of claim 12, wherein the delay varies with different test hardware and different devices under test.

14. The method of comparing two data streams wherein one data stream is propagated through hardware and has a delay, the method comprising:

synchronizing the start of the two data streams, wherein the synchronizing step comprising:

5 setting a first data stream generator to output a first periodic pulse stream with its period equal to first period, T1, producing an output after the delay;

 setting a second data stream generator to output a second periodic pulse stream with its period equal to second period, T2, wherein the
10 second period, T2, is not equal in duration to the first period, T1;

 detecting a time when a pulse of the delayed first pulse stream and a pulse of the second pulse stream occurs simultaneously;

 changing the period of the second pulse stream to be equal to first period, T1; and

15 starting the generation of the two data streams; and

 comparing the two data streams, after starting the two data streams.

15. The method of claim 14, wherein the comparing step compares the two data streams in a bitwise fashion.

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16. The method of claim 15, wherein the comparing step compares the two data streams using a binary exclusive-or logic gate.

17. The method of claim 14, wherein the hardware comprises test hardware and a device under test.

5 18. The method of claim 17, wherein the device under test is data device.

19. The method of claim 18, wherein the data device is a wireless data device.

10 20. The method of claim 18, wherein the data device is a wired data device.

21. The method of claim 14, wherein the comparison produces a logical high value when a bit in one data stream is different from a corresponding bit
15 in the other data stream.

22. The method of claim 21, wherein the method further comprising a step of counting the output of the comparing step.

23. An apparatus for performing a comparison of two data streams

wherein one data stream has a delay, the apparatus comprising:

a first data stream generator containing circuitry to generate a first data stream;

5 a second data stream generator containing circuitry to generate a second data stream;

a controller coupled to the first and second data stream generators, the controller comprising:

10 a command issue unit coupled to the first and second data stream generators, the issue unit containing circuitry to issue commands to the first and second data stream generators, controlling type and period of the data streams; and

15 a synchrony detector coupled to outputs of the first and second data stream generators, the detector containing circuitry to detect the occurrence of pulses from the first and second data stream occurring simultaneously;

a combinatorial logic unit coupled to outputs of the first and second data stream generators, the logic unit containing circuitry to perform a comparison of the first and second data streams.

20 24. The apparatus of claim 23, wherein the apparatus further comprising a counter coupled to the combinatorial logic unit, the counter to count the output of the combinatorial logic unit.

25. The apparatus of claim 23, wherein the combinatorial logic unit comprises:

5 a comparison unit coupled to the outputs of the first and second data stream generator, the comparison unit containing circuitry to compare the outputs bit-by-bit and to produce a first output when the bits are equal and a second output when the bits are different; and

10 an enable unit coupled to the output of the comparison unit, the enable unit containing circuitry to enable and disable the output of the comparison unit.

26. The apparatus of claim 25, wherein the comparison unit comprising an exclusive-or logic gate.

15 27. The apparatus of claim 25, wherein the enable unit comprising a negative-and logic gate.

28. The apparatus of claim 23, wherein the apparatus is used to count the number of times bits in the two data streams are different.

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29. The apparatus of claim 23, wherein the output of the first data stream generator is a delayed version of the output of a third data stream generator.

30. The apparatus of claim 29, wherein the command issue unit is further coupled to the third data stream generator, and the issue unit issues commands to the third data stream generator, controlling type and period of
5 its output.